

Claims

[1] In a multi-direction wind power generation apparatus including a central axis mounted vertically on the ground; a plurality of pivots inserted rotatably into the central axis; a plurality of upper/lower support frames established on outer circumference of the plural pivots at regular intervals; vane plates, which are provided on the outside of the upper/lower support frames and rotated or suspended by the wind so as to rotate the pivots; rotation control means for controlling rotation angles of the vane plates; driving gears, mounted on bottoms of the pivots, for transmitting rotation powers of the pivots; a follower gear axis including follower gears for receiving the rotation powers from the driving gears; and an electric generator for generating electricity by receiving the rotation power of the follower gear axis, wherein the rotation control means interfere with different sides of vane plates, respectively, so that the vane plates of the plural pivots adjacent to each other are rotated reversely to each other, the multi-direction wind power generation apparatus further comprising:
a gear case, established under the pivots, including the driving gears, the follower gears and the follower gear axis;
bearing units, provided on upper/lower sides of the driving gears mounted on the bottoms of the pivots and one side of the bearing unit is fixed inside the gear case, for supporting the pivots; and
idle gears, engaged with lower driving gears of the pivots rotating in a reverse direction, for converting the rotation direction of the pivots rotating in the reverse direction when the pivots adjacent to each other are rotated in the reverse direction according as the vane plates are rotated in the reverse direction under the influence of the wind.

[2] The multi-direction wind power generation apparatus as recited in claim 1, wherein separation preventive means are further established on an upper end of the central axis to prevent separation of the upper/lower support frames.

[3] The multi-direction wind power generation apparatus as recited in claim 1, wherein a support frame supporting means is further provided to strongly supporting the upper/lower support frames.

[4] The multi-direction wind power generation apparatus as recited in claim 3, wherein the support frame supporting means includes upper/lower supporters, of which one end is fixed rotatably on the central axis and the other end is mounted on one side of upper/lower part of the upper/lower support frame; auxiliary support frames having a shape of "U", provided between the upper/lower support frames plurally mounted on the outer circumference of the pivots; cross-support

members, installed along with inner/outer circumferences of the upper/lower support frames and inner/outer circumferences of the auxiliary support frames, for supporting a lateral direction of the upper/lower support frames; and bend preventive members, established within the upper/lower support frames and the auxiliary support frames, through which the cross-support members go, for preventing the upper/lower support frames and the auxiliary support frames from being bent.

[5] The multi-direction wind power generation apparatus as recited in claim 3, wherein the support frame supporting frame includes upper/lower supporters, of which one end is fixed rotatably on the central axis and the other end is mounted on one side of upper/lower part of the upper/lower support frame; cross-support members, installed along with inner/outer circumferences of the upper/lower support frames and inner/outer circumferences of the auxiliary support frames, for supporting a lateral direction of the upper/lower support frames; and bend preventive members, established within the upper/lower support frames, through which the cross-support members go, for preventing the upper/lower support frames, the vane plates are divided numerously so that rotations of vane plate are not disturbed by the cross-support members.

[6] The multi-direction wind power generation apparatus as recited in claim 1, wherein the vane plates are divided numerously in a horizontal direction and the respective vane plates divided numerously rotate independently.

[7] The multi-direction wind power generation apparatus as recited in claim 1, wherein a separation axis to be separated is further provided by cutting a central part of the central axis and recombined on the central axis by joining both ends of the separation axis by means of flanges.